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| 09/617,100 | 07/14/2000 | Koichi Sato | P19364 | 5280 |

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| EXAMINER |
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GENCO, BRIAN C

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| ART UNIT | PAPER NUMBER |
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2615

DATE MAILED: 10/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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|------------------------------|--------------------------------------|-------------------------------------|--|
| Office Action Summary | Application No. 09/617,100 | Applicant(s) SATO, KOICHI | |
| | Examiner Brian C Genco | Art Unit 2615 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,6 and 8-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,6 and 8-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Examination of the instant invention is now being conducted by Brian Genco.

Applicant's amendment filed August 13, 2004 has been fully considered by the Examiner but is not deemed persuasive.

In reviewing the prosecution history Examiner is presenting new grounds of rejection bellow.

In the amendment filed January 6, 2004 Applicant amended the claims to include the limitation that the "control amount calculator that calculates a control amount for performing a white balance adjustment, based on an image signal relating to a single image area. Applicant argued that "Applicant submits that MIYADERA discloses that an image frame is divided into a plurality of sectors. A white balance adjustment is changed in accordance with the sectors. This differs from Applicant's invention, in which the amount of the white balance adjustment for all image areas is determined in accordance with an image signal related to a single image area."

In response, Examiner notes that as broadly as claimed the Miyadera reference still reads on this limitation. In particular, Miyadera discloses a control amount calculator that calculates a control amount for performing a white balance adjustment through adjusting the white balance for each sector. Further, this adjustment is made based on an image signal relating to a single image area, namely the image signal corresponding to the distance measurement for that particular sector of the image (column 7, lines 4-7).

In the amendment filed August 13, 2004 Applicant amended the independent claims so as to include the limitations from canceled claim 7. Applicant argues that "According to a feature

of the present invention, discussed at, for example, at pages 21 and 22 of Applicant's specification, an image area is extracted from one frame image in accordance with obtained in-focus distance data and three-dimensional image data. Specifically, at least one image area is extracted based on the three-dimensional image data. Applicant submits that at least this feature is lacking from the applied art of record."

In response, Examiner notes that the image area is extracted from one frame image in accordance with obtained in-focus distance data and three-dimensional image data is not claimed wherein as broadly as claimed the combination of references teach this limitation as detailed in the rejection bellow.

Claim Objections

Claim 2 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-3, 8, 9, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over (USPN 5,550,587 to Miyadera) in view of (USPN 4,915,498 to Malek).

In regards to claim 1 Miyadera discloses a device that calculates a white balance control amount for an electronic still camera comprising:

an image signal generator that generates an image signal corresponding to a first image formed on a light receiving surface of an imaging device (e.g., column 3, lines 51-59; element 51 of Fig. 4);

an image area extractor that extracts at least one image area, which contains a second image of a subject positioned at a predetermined distance from said electronic still camera, from said first image (e.g., column 6 line 24 - column 7 line 64; Miyadera discloses to extract at least one image area, namely extracting three image areas corresponding to short, intermediate, and long distances from the camera. As shown in Fig. 4 each area contains a second image, namely the short distance area contains an image of a person, the intermediate distance area contains an image of a house, and the long distance area contains an image of a mountain and the sky, wherein each of these image areas are from the first image); and

a control amount calculator that calculates a control amount for performing a white balance adjustment, based on an image signal relating to a single image area contained in said at least one image area (e.g., column 6 line 24 - column 7 line 64, column 12 lines 39 - 47; Note that Miyadera discloses performing white balance adjustment to each of the areas based on the image signals relating to the corresponding individual areas. As such, white balance is controlled for the short distance area, containing the image of the person, base on image signals relating to the single area of the short distance);

wherein said image area extractor comprises a three dimensional image data sensing processor that senses three dimensional data indicating a distance from said electronic still camera to each sector on a surface of said subject to obtain said second image (e.g., Fig. 4; column 6 line 24 - column 7 line 64).

Examiner notes that Miyadera discloses that in performing distance measuring on a plurality of points, each distance measurement point should correspond to one sector (column 13, lines 2-6). Examiner further notes that as shown in Fig. 4 there are several situations in which a single sector will contain data from different distances. For example, as shown on the left side of the persons head, half of the sector is filled by the persons head corresponding to a short distance and the other half is filled by the house corresponding to the intermediate distance. Further, in the sector above that one the sector contains data from each of the short, intermediate and long distances.

Miyadera does not disclose nor preclude that the three dimensional data indicate a distance from said electronic still camera to each point on a surface of said subject image.

Examiner notes that it is extremely well known in the art to generate a three-dimensional range image for representing a distance from the camera to every individual pixel as is taught by Malek. Malek discloses a three dimensional image data sensing processor that senses three dimensional data indicating a distance from said electronic still camera to each point on a surface of said subject (e.g., column 7 line 67 - column 8 line 10).

As the object of Miyadera's invention is to obtain the correct white balance across the whole image one of ordinary skill in the art would clearly recognize that making the sectors as small as possible would enable obtaining a more accurate adjustment of the white balance. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized a three-dimensional range finder such as Malek's in order to sense the distance of each pixel and therefore more accurately correct the white balance corresponding to the detected distance.

In regards to claim 2 see Examiner's notes on the rejection of claim 1.

In regards to claim 3 see Examiner's notes on the rejection of claim 1. Note that as disclosed in Table 1 on column 7, lines 23-42 each distance area comprises a range of distances.

In regards to claim 8, Malek discloses the device of claim 1, wherein said three dimensional image data sensing processor comprises a light source radiating a distance measuring light beam onto said subject (e.g., column 7 lines 43-55), and a three dimensional image signal generating processor that generates three dimensional data indicating a distance from said electronic still camera to each point on a surface of said subject (e.g., column 7 line 67 - column 8 line 10).

In regards to claim 9, Malek discloses the device of claim 8, wherein said three dimensional image signal generating processor comprises said image signal generator (Figure 1 item 9).

In regards to claim 11 see Examiner's notes on the rejections above.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over (USPN 5,550,587 to Miyadera) in view of (USPN 4,915,498 to Malek) in further view of applicant's admitted prior art (AAPA).

Regarding Claim 6, Miyadera does not disclose nor preclude said control amount calculating processor extracts a third image composed of an achromatic color from said second image of said image area extracted by said image area extracting processor, and calculates said control amount based on only said third image.

AAPA teaches a control amount calculating processor extracts an image composed of an achromatic color from an image (Page 1 lines 11 - 15), and calculates said control amount based on only said extracted image based on the achromatic color (Page 1 lines 11 - 15). Such an arrangement of using the achromatic signals is well known and would be beneficial in accurately and efficiently correcting the color balance. Therefore, it would have been obvious to one of ordinary skill in the art to include the control amount calculating processor extracts a third image composed of an achromatic color from said second image of said image area extracted by said image area extracting processor; and calculate said control amount for said image area based on only said third image so as to accurately and efficiently obtain a correct white balance color correction.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over (USPN 5,550,587 to Miyadera) in view of (USPN 4,915,498 to Malek) in view of (USPN 6,057,909 to Yahav et al.).

In regards to claim 10 Malek discloses the device of claim 8, wherein said three dimensional image signal generator comprises:

a plurality of photoelectric conversion elements that receive a reflected light beam from said subject, so that a signal charge corresponding to an amount of the received reflected light beam is accumulated in each of said photoelectric conversion elements (e.g., element 15 shown in Fig. 1, and in particular element 9);

a signal charge holder disposed adjacent to each of said photoelectric conversion elements (e.g., having vertical CCDs to transfer charge vertically is implied with a CCD imaging

Art Unit: 2615

device, wherein the vertical CCDs are charge holding units adjacent to each of said photoelectric conversion elements);

an electric charge discharging processor that discharges an unwanted charge accumulated in each of said photoelectric conversion elements, so that said accumulation of said signal charge is started in each of said photoelectric conversion elements (e.g., Malek discloses a clear operation on column 8, lines 6-8; Fig. 3; column 9, lines 33-53);

a signal charge transferor that transfers said accumulated signal charge in said photoelectric conversion elements to said signal charge holder (e.g., the signal charge transfer processor is also an implied feature of a CCD in order to transfer charges from pixels to the vertical CCDs).

Malek does not disclose a signal charge integrator that alternately drives said electric charge discharger and said signal charge transferor, so that said signal charge is integrated in said signal charge holder. Malek does disclose that the transmitter should be adjusted so as to prevent saturation in the image sensors (e.g., column 9, lines 11-16). Note that a clear, integrate, and read operation are implied in Malek's disclosure through the description of the clear operation.

Yahav et al., herein Yahav, discloses that the integration of distance measurement charges can be preformed multiple times in a field period in order to increase the signal/noise ratio of the image (column 3, lines 25-39). Therefore it would have been obvious to have preformed Malek's distance measurement operation multiple times in one field period in order to increase the signal/noise ratio of the image. As such, the electric charge discharger and transferor would be operated alternately as claimed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian C. Genco who can be reached by phone at 703-305-7881 or by fax at 703-746-8325. The examiner can normally be reached on Monday thru Friday 8:30am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Christensen can be reached on 703-308-9644. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the customer service office whose telephone number is 703-308-4357.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Brian C Genco
Examiner
Art Unit 2615

October 5, 2004



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